TEMPORALIZING THE PRESENT AND ARCHIVING PRESENCE. The impact of time-critical media technologies

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Introduction: New "shapes of time"

On the scene of cultural techniques, a new drama gets into focus: the techno-logically induced *chronopoetics* of microtemporal processes.[1]

Both in neuroscience and in studies of electronic and digital technologies, the analysis of time-critical action radically challenges the totalizing parameter of emphatic time, with a shifting emphasis towards the non-linear, the stepwise sequential, the loop-folded, in the double sense of temporally rhythmic and operationally algorithmic events.

The guiding theorem here is that there is a privileged affinity between sonic tempor(e)alities and "timely" media. The method of media archaeology will therefore be introduced in a specific way,

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1 As an e-mail from April 14, 2011 by Ina Blom (University of Oslo), author of a forthcoming *Auto-biography of Video Art* reminds me: "In the context of the Radical Software journal (The Raindance video collective), the neologism 'chronetics' was put to use in ways that seem analogous with your 'chronopoetics'."

that is: with a focus on time-criticality and "sonicity".

Time-based media: *re-entry* of narrative as calculation

One meaning of *to tell* is „to be able to distinguish things", to be able to *tell one thing from the other*". This adresses the core of digital mediality, with its smallest units (bits) being arranged in differential sequences. Even closer to this, „to tell" as a *transitive verb* means to „to count things" for example <Encarta>.

Electronic media tempor(e)alty: "acoustic space" (McLuhan)

The sonic is understood here not in its manifest acoustic sense, but as processual ground. Such an understanding of sonicity for the analog electronic media epoque has been identified by Marshall McLuhan decades ago.

The wall painting created by René Cera, Pied Pipers All (1969), created for McLuhan's seminar room at the university campus in Toronto[2], in an almost psychodelic manner unreveals the television image as a sonic event. Whatever its apparent visual content, the tempo-real message of electronic media is "acoustic" in McLuhans sense of simultaneous chronospheres.[3]

Acoustic space is simultaneous and superimposed instead of time-linear, and above all, it resonates: "Resonance is the mode of acoustic space."[4] Through resonance in a physical - not symbolically coded - system, micro-events can cause distant objects to communicate - close to time-tunneling and Tesla-like

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2 For a colour reproduction see fig. 3 in: Peter Bexte, xxx, in: Derrick de Kerckhove / Martina Leeker / Kerstin Schmidt (eds.), McLuhan neu lesen, Bielefeld (transcript) 2008, 323-xxx (331). Photo: Derrick de Kerckhove; *online*: http://www.greatpast.utoronto.ca/GalleryOfImages/VirtualMuseumAr tifacts/PiedPipers.asp (accessed September 2nd, 2014)
3 See Erik Davis, Acoustic Cyberspace. Talk delivered at the Xchange conference, Riga, November 1997; *online* http://www.techngnosis.com/aco. Published in: Rasa A mite / Raitis A mits (eds.), Acoustic Space - net. audio issue, Riga (E-LAB) 1998
4 Marshall McLuhan / Bruce Powers, The Global Village. Transformations in World Life and Media in the 21st Century, Oxford et al. (Oxford University Press) 1989, paperback edition 1992, 6

energy transfer.

<cSOUND-ARC-AARHUS>
Sound is not just mechanical attacks, vibrations to the ear or
aesthetic pleasure for the brain but addressing the human
(pseudo-)sense of temporality. The true message of sound as event
is processual time.

The "tuning of the world" (as expressed by Murray Schafer in 1977)
is a *timing* of the world as well. What looks physically acoustic
is temporal in its subliminal affect. If the "sonic environment"
is extended to so-called Hertzean waves as well, electromagnetism
turns out as sublime temporality in all ways.

The chrono-poetical potential of such sonicistic articulation can
not be captured and subsumed by the logocentrism of traditional
musicology or literature. "Acoustic space" is of a different
temporal nature: not linear, but reverberating. McLuhan once
called it "echo land" - which brings us to micro-temporal folding.
Let us take the metaphor literally: Acoustic echo implies delay,
the very temporality induced by the medium as channel of signal
transfer which once led Aristotle in his treatise *Peri psyches* to
deal (media-)philosophically with the "Inbetween" (*to metaxy*). By
turning the adverb into a noun, after its translation by medieval
scholasticism this became *medium*. Therefore the very term media
stems from sonic analysus.

Notwithstanding his confusing electricity and electronics, McLuhan
thereby made a crucial discovery about the intrinsically
"acoustic" structure of electronic mediascapes which are rather
defined by temporal relations to each other than by spatial ones.

The affective immediacy of electricity is the reason for traumatic
subliminal effects in human perception; this makes the time-
critical difference to the world of traditional print culture
which, as McLuhan analyzed in his days already,

"<...> is threatened, not by anly single factors such as
television or radio, but by the electric speed of information
movement in general. Electric speed is approximately the speed of
light, and this consitutes an information environment that has
basically an acoustic structure."[5]

This is acoustic presence (wave form) different from the present
digital instant (impulse coded as bit).

If information comes simultaneous from all directions this

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5 Marshall McLuhan, letter to Barbara Ward, 9 February, 1973,
   published in: McLuhan 1987: 466

corresponds with the structure in the act of *hearing*. But very media-archaeologically, McLuhan's identification of the essence of electronic media as "acoustic structure" evidently refers to an epistemological ground, not to the acoustic figure of what ears can hear. This ground-breaking took place with the collapse of Euclidic space into Riemann spaces and culminates around 1900 with quantum physical notions (the para-sonic wave/particle dualism, up to the "superstring" theory of today) on the one side, and Henri Bergson's dynamic idea of matter as image in the sense of vibrating waves and frequencies on the other side.[6] McLuhan's "acoustic space" is oscillating time and implicitely re-turns in Gilles Deleuze's Leibniz_inspired "interval" philosophy. Less philosophically, it actually happens within algo-rhythmic media.

Therefore the message of the sonic is not limited to the audible at all, but a mode of revealing modalities of temporal processuality – which requires media-archaeological auscultation like with an epistemological sthetoscope.

<end ModSOUND-ARC-AARHUS>

But the digitally modulated (PCM) electrosphere of today differs from this radiosonic (AM) metaphor; its musicality consists of rhythmic impulses rather than continuous waves. With digital numbers, central characteristics of what McLuhan diagnosed as the Gutenberg Galaxy of print culture have returned, thus bracketing the age of analog electronic (mass) media as a interplay of modernity. In a dialectric synthesis, mobile digital telecommunication is now combined with the characteristics of "acoustic space" which is the instant. According to Marshall McLuhan's *Media Log*, "[s]imultaneity is related to telegraph, as the telegraph to math and physics."[7] But this discrete simultaneity is of a different kind. The Internet consists of techno-mathematical topologies rather than electromagnetic waves (even if the electromagnetic sphere survives as channel of wireless data transmission). "Now, Internet 'radio' isn't radio; it does not exploit the <sc. electromagnetic> spectrum, and that is a big difference"[8] – just like the difference between music recorded in vinyl grooves and its Compact Disc inscription where its close analysis reveals bit streams which allow for information theory, thereby: mathematical intelligence to control the event of signal storage and transmission. This happens in sublime manipulation on the micro-temporal level. Even if according to the Nyquist / Shannon Sampling Theorem human perception might not even notice the difference between a high definition analog television image and its digital equivalent, ontologically this image has

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6 Henri Bergson, Matter and Memory, London (George Allen & Unwin) 1950, 276

7 Marshall McLuhan, Counterblast. 1954 Edition, published by transmediale.11 Berlin (in cooperation with Gingko Press) in 2011

8 Davis 1997

transformed into a different time-object once the critical
perspective of the "receiver" is not humans but technologies
themselves. But digital data processing which absorbs time to
calculate always lags behind live transmission which allows for a
different presence.

"Sample and Hold": Micro-archiving presence from analog to digital

The media-archaeological spelling of (micro-)tempor(e)alities on
the one hand reminds of the Latin notion for *realitas* from *res*,
the material artifact. Media time is embodied temporalities. The
spelling of tempor(e)ality is further influenced by Alfred North
Whitehead's philosophical thoughts as well: his dynamic theory of
Process and Reality. But at the same time, media archaeology is
more strictly *grounded* in the technical sense. German "geerdet"
(grounded) is an expression from electro-technical engineering,
indicating that circuits in hardware have to be connected with the
phyiscal "mass". Let us therefore not reduce media phenomenology
to human sensation, perception and mind, but extend it to a kind
of phenomenology *of* and *by* the machine as made possible by signal
sensors. It is the "sample&hold" mechanism which not simply
translates but even transsubstantiates (to borrow a term from
Catholic religous liturgy) the analog physical world into digital
computability.

My analysis is not meant to be just a further variance in the long
history of philosophy obout the nature of time but, in identifying
concrete techno-logical scenarios media archaeology analyses new
"shapes of time" (George Kubler) – by reading circuit diagrams
instead of knowledge historiography only. The sample-and-hold
mechanism (before the signal actually gets digitally quantised)
performs *the ephemeral archive* – with its records being "stored"
only for a fraction of a millisecond. Condensers figure among the
smallest electro-physical storage elements, and combined with
transistors they function as micro-memories here. The electronic
sound slice is a temporal being in such electronic circuits, not
punctual, but a suspended instant of time as voltage.

The most common notion of "historical" time has until nowadays
been based on the emphatic "archival" observational separation
between past and the present. This distinction (in Spencer-Brown's
terms) has shrinked technologically into the most minute micro-
temporal Derridean *différance* in digital computing (which made the
binary system preferable to the decimal system as still applied in
the ENIAC computer). The fundamental unit of memory for electronic
ingeineers seemed "naturally adapted to the binary system" since
they did not attempt to measure gradations of charge at a

particular point but were "content to distinguish two states"[9] -
which makes all the difference to the time-functional classical
black & white television scan line, and to analog computing which
is rather the twin of the synthesizer in electronic music.

The flip-flop as truly a binary decive provides for the rhythm.
Magnetic wires or tapes or acoustic delay line memories recognized
the presence or absence of a pulse or (if a carrier frequency was
used) of a pulse train."[10] All of the sudden, beyond the familiar
notion of the continuous flow of time, computer time sounds
different.

Technical recording of sound

Technical recording of sound has always been a process of storage.
"The breaking of the time constraint has profoundly changed the
nature of acoustic communication."[11] The temporality (and volatile
being-to-death) of sonic articulation which hitherto could only by
recorded symbolically by mnemonic notation is transformed into
space and visualization by the very act of recording, making it
available for analysis "outside of time" <ibid.>. The temporal
essence of sound is thereby turned into a reified, objectified
time object, freezing its evanescence.

The traditional sound record - like the textual record - can be
included within an institutional archival frame. With digital
sound, though, literally every bit of sonic articulation becomes
part of a generalized "archival presence", since a) every digital
signal processing involved ultra-short quasi-archival intermediary
storage and b) every sound "bit" becomes numerically addressable
and thereby accessible to mathematical / algorithmic manipulation.
The archival frame is deconstructed and re-turns from within the
digital archival records themselves. From analog to digital
"archiving" sonic presence, "the manner of storage determines the
kind of control that can be exercised over it" - from manipulation
to distortion <Truax 1984: 119>. At the same time, the analog-to-
digital conversion results in a transsubstantiation of the audio
signal: from the primary physical event to information which is
essentially neither energy nor matter. Thereby the signal loses
its indexical trace; transitive transduction is therefore to be
set into quotation marks: "[...] the digital 'transduction'

9 Section 5.2., in: Arthur W. Burks / Herman H. Goldstine / John
   von Neumann, Preliminary Discussion of the Logical Design of an
   Electronic Computing Instrument, in: John von Neumann, Collected
   Works, vol. 5, ed. by A. H. Taub, Oxford (Pergamon Press) 1961,
   34-79; Wiederabdruck in: Swartzlander (Hg.) 1976, 221-xxx (227)
10 Burks et al. 1961 / 1976: 227
11 Barry Truax, Acoustic Communication, Norwood, N. J. (Ablex)
   1984, 117

process includes the digitalization of the analog signal by the ADC, its <micro->storage and / or manipulation in binary number format, and its reconstruction as an anlog signal by the DAC" <Truax 1984: 139> - which is the conversion of an electronic representation (embodiment?) of a number stored in the computer memory to discrete voltage steps at fixed time intervals (Dt). The physically continuous original waves are thus transformed into quare waves; in fact every binary computational act is an abrupt form of oscillation between zero and one in a time-sequential form. Only by smoothing the square wave by filters the wave becomes continuous again.

The temporalized cyborg, signal time and acoustic media archaeology

My media-archaeological approach still shares a core cybernetic assumption - since cybernetics is not historicized here as a chapter in the history of knowledge. From the *coupling* of human beings to techno(chrono)logical (artefacts), a specific experience of time results.

<ModHAND-APPARAT>
Just remember the pinball game machine from public houses, as described in a typescript entitled "Flipper" (which is the German equivalent for pinball) by Friedrich Kittler from the 1960s or 70s which immediately anticipates the first generation of computer games. If the human is defined by his gaming instinct, he becomes inhuman once his partner is an automaton. This counts for the temporal aspect of gaming as well.[12] The human pinball player with his hand(s) as interface to the automaton has to critically adopt to the electric tempor(e)ality of the machine.

Now, if there is a specific alliance between the micro-patterns and "larger gestalts of auditory temporality[13] on the phenomenological level and the processual being of technical media, their time-critical moments affect the most frequency-sensitive ("rhythmic") sense organ within the human which is hearing.

This has consequences for re-presencing the technically recorded "audible past" (Jonathan Sterne). If a movie projector is driven manually like in the vera early days, the visual perception is quite tolerant to slight temporal deviations. This is different

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12 "Wenn der Mensch nur dort ganz Mensch ist, wo er spielt, so wird auch er, wenn sein Mitspieler Automat ist, zum Unmenschen." The typescript is kept in the "Miscellanea Curiosa" of the Kittler papers at the German Literary Archive, Marbach.
13 Don Ihde, Listening and Voice. Phenomenologies of Sound [*1976], Albany, NY (State University of New York) 2007, 87

with auditory signal replay.

Deconstructing the historical sense of time from within technological media

To what degree does the historicity of sound depend on its material embodiment? Phonographic "engraving" is sound in latency. The ontological status of recorded sound is waiting to be activated (German "in-Vollzug-Setzung"), to be "re-presenced" (a term coined by Vivian Sobchack in her analysis of media archaeology[14]). Be it the analog reproduction of temporal wave forms or its digital reverse, the processing of atemporal mathematical frequencies, such "beeing-in-time" is not historical any more, but techno-logical. It requires the media-archaeological ears to understand such sonicity.

Is the sound of an existing Roman era bell dating from the third century a more ancient sound than the sound created by an equivalent bell from present time production, the media archaeologist Paul DeMarinis asks. "For this to be the case we would have to think of the bell itself as an encoding of some 'sound'; that sound, in turn, would have to include the splashing of the molten brass, the beating by smiths' hammers etc. But the sound the bell produces in its current use is far from being a recording of these sounds."; even if the bell stems from the past, its sounding is always present.[15]

[Bachofen experienced it in 19th century Rome:

"There is something about the walls of Rome that moves the inmost depths of man. When a metal plate is struck, the iron resounds and the echoing is stopped only by laying one's finger on it. In the same way, Rome moves the spirit that is in communication with antiquity ... all that was slumbering within him." [16]

Bachofen further:

"There are two roads to every kind of knowledge, the longer, slower, more laborious one of intellectual combination, and the shorter one, the one we cover with the energy and speed of electricity

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14 Vivian Sobchack, xxx
15 Paul DeMarinis, According to Scripture [*2002], in: Ingrid Beirer / Carsten Seiffarth / Sabine Himmelsbach (eds), Paul deMarinis. Buried in Noise, Heidelberg (Kehrer) 2010, 247-252 (247)
16) Zitiert nach Gossman, "Orpheus", 46f

- the road of the imagination when it is touched by the sight and the immediate contact of ancient remains and grasps the truth in a flash, without any intermediate steps."[17]]

A fundamental issue is at stake here: the need to de-couple the question of "temporality" from any narrative concept of temporal sequences which finally questions the notion of history itself.

Once our chrono-analysis is suspended from the historical discourse, a more radical challenge arises which is (among othres) formulated in Timothy Scott Barker's book *Time and the Digital* as well: Is it possible to deal with micro-temporealities without mentioning the transcendent signifier "time" at all - in favour of a multitude of descriptive terms, a "field"?

"Time - today <...> - seems to reveal a new structure and to unfold in a rhythm that is different from the 'historical' time that governed the nineteenth- and the early-twentieth centuries. In this new chronotope - for which no name exists yet, even though we live within its forms - agency, certainty, and the historical progress <...> have faded into distant memory."[18]

Marshall McLuhan already had radically declared in a post-Hegelian mode: "Just as linear history begins with writing, it ends with TV"[19]. History depended on a cultural technique which is alphabetic, linear writing. The "writing" of images and texts on the cathode ray tube for television and computer monitors is of a different kind. Electronic media, therefore, are not just another variance in the history of technology but establish a new kind of temporal reality which escapes the concept of history.[20]

In contemporary society where the grand imaginary and pan-chronic horizon of temporal extension[21] such as religious eternity, the genealogy of nation states or the philosophy of history have been electronically condensed and algorithmically compressed into (or even replaced by) ever shrinking temporal intervals and a focus on the instantaneous present, the close analysis of decisive temporal actions reveals the drama of time-critical media.

In techno-culture an augmented present unfolds, differentiated into a *media dramaturgy* of microtimes; the public radio and TV channels in Germany are even legally obliged to provide online access to a *Mediathek*, a library of broadcasts stored for a week.

17 Quoted here after Gossman, "Orpheus", 49
18 Hans Ulrich Gumbrecht, After 1945. Latency as Origin of the Present, Stanford, Cal. (Stanford University Press), 38
19 Marshall McLuhan, Counterblast, New York (Harcourt, Brace & World) 1969, 122, as quoted in Bexte 2008: 332
20 McLuhan 1969: 122
21 See David Lowenthal, The past is a foreign country, Cambridge (Cambridge U.P.) 1985

This is not an archive yet, but an extended window of the present.

Time of the tape: spools, loops

<cSPEICHERSEM>

Bergsonean "duration" is like the time of a magnetic tape running between two spools.[22] Temporal loops materialize in the time of the tape.

- see Samuel Beckett's one act drama *Krapp's Last Tape* where the magnetophone figures as memory protagonist and the spool represents the loops in Krapp's autobiographic recursions.

Katja Nick has been a circus artist specialized on backward-speaking. As a proof that she did not make up but actually time-reversed reversed correctly what a member of the audience had told her, she recorded her articulation on a specially modified tape recorder which could literally "play back" her reverse-speech performance.

When Katja Nick speaks backwards, she is herself in a machine state.

Not only that the performance of back-speaking is inspired by the dominant reel-to-reel tape technologies of her days, but the magnetophon itself in a stricter sense serves as a non-subjective proof of her claim.

The magnetophone registers unintended presences, a Proustean *mémoire involontaire*:

In the phonographic recording of a performance of Donezetti's opera *Lucia di Lammermore* featuring Maria Kallas as Lucia at the Milano Teatra della Scala in 1954, all of the sudden a radio interference occurs in the act of the primal microphone recording.

Digital sampling allows for a micro-analysis of such signal events, time-discretely temporalising the present.

"Liquefying" the archive

David Lynch's film *Inland Empire* which begins with the image of a spinning record on a record player. "As the needle drifts across the timeles surface of reified sounds, we are, once again, in the realm of mechanical preproduction and the logic of industrial

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22 See Barker 2012; 59, referring to Henri Bergson

time."[23] The digital fragmentation of time, on the other hand, results in the loss of the chronology and directionality of time which becomes "<...> terrifyingly opaque and illegible for the human subject"[24], resulting in a sublime micro-tempor(e)ality.

<cMEDMEM-GLASGOW>
With the present as a function of rapid memory operations (both neurologically and digitally), the transformation of the traditional temp*aural*ity of archival storage needs to be observed as well: from archival space to archival time, to the archival "field". Dynamic micro-media memories induce a cultural shift of emphasis from permanent storage to restless transfer. With the aesthetics of re:load, the technological affinity between the archival operation and cybernetics turns out, as manifest in feedback memory and timeshifting. Once these transformations have been analyzed, suspended memory results in total recall.

There are good reasons for questioning the static concept of an "archive" as appropriate term for digital record structures since as a metaphor it is increasingly becoming a hindrance for the analysis of dynamic data storage and circulation. The computer hard disc literally *moves* stored data in post-structural ways, just like the the magnetic tape did with recorded electronic signals (sound and video) before. The archive becomes *processual* in digital algorithms.

Archival endurance (with its records oscillating between symbolic code and physically entropical decay) is undermined when a record is not fixed any more in a permanent storage medium but techno-mathematical flow replaces the physical inscription.

[Sonic auscultation is an attempt to capture the volatility of sound and reveal its temporal message in a concrete manner through the algorithmic stethoscope, which is software for sound analysis.]

[The video artist Bill Viola in his essay on what he calls the *sound* of electronic images pointed out "the current shift from analogue's sequential waves to digital's recombinant codes" in technology.[25] Sampling and quantizing of acoustic signals analytically transforms the time signal into the information of frequencies which is the condition for technical re-synthesis

23 Zoltán Glück, After Midnight, or: The Digital Logic of Time Fragmentation in Inland Empire, in: Munitionsfabrik 19 (2008), HfG Karlsruhe, 8-11
24 Glück 2008: 9
25 Viola 1990: 47

(Fourier transform). Digitalization means a radical transformation in the ontology of the sound record - from the physical signal to a matrix (chart, list) of its numerical values. Media culture turns from phonocentrism to processual mathematics.]

[The Technical Committee of the International Association of Sound Archives in her standard recommendations from December 2005 points out that any such rules of audio preservation need to be revised when changes of the technological conditions take place.[26]]

Digital operating systems need constant up-dating (in terms of software) and data „migration" amd appropriate hardware to embody them. From that derives a change from the ideal of archival eternity to permanent change - the dynarchive.

[When the transfer techniques of audio carriers changes from technically extended forms of writing such as analog phonography to calculation (digitization), this is not just another version of the materialities of cultural tradition, but a conceptual change. From that moment on, material tradition is not just the function of a linear time base any more (the speed of history), but a new, basically atemporal dimension opens, short-cutting the emphatic time arrow and demanding for a partial differentiation as familiar from the infinitesimal calculus once introduced by Leibniz as a measure of change *within* speed.]

Not yet memory? Focus on micro-storage tempor(e)alities

<cMEDZEIT-AFFEKT>
[According to Edmund Husserl's phenomenology of the subjective time consciousness, time is "a stream of experiences with an infinite chain of *now*-points, each of them embedded in a retention (a now-point just passed) and a protension (an expectation of a now-point which is still in the future but which becomes a now-point in the present"[27]. This mechanism does not refer equally to the auditive and the visual but rather time-critically counts for acoustic sensation especially (the vibrational touch).]

<cMEDMEM-OSLO>
[There is micro-memory involved in any sonic perception of presence already; the present is by no means experienced as punctual "now". On the micro-acoustic level this re- and protention have been discussed by Husserl and Henri Bergson to explain melody experience which fits into what neuro-science

26 See http://www.iasa-web.org/IASA TC03/IASA TC03.pdf (accessed June 2011)
27 As paraphrased by K. R. Eissler, The Psychiastrist and the Dying Patient, New York (Intenrational University Pres) 1955, 272 <quoted here after Hartocollis 1983: 4

calles the time-window of "presence" as perceived within humans: about three seconds of duration which susprisingly corresponds with the length of one hexametric verse in oral poetry like Homer's epic compositons.[28]]

["Different stimuli which are processed within a *temporal window* of approximately 30 ms are treated as *co-temporal*, i. e., a temporalen relationship with repsect to the before-after dimension cannot be established for such stimuli. Information gathered within a temporal window of 30 ms is treated as *a-temporal*, i. e., there is no temporal contuity defined and definable for stimuli that follow each other within such intervals."[29] We touch the tempor(e)al sublimity of "digital media": underscoring human perception, but still being *sublimely* digital.]

[Media archaeology as method couples such evidence *tightly* with technological knowledge. "Data Retention" in fact is most preciselby known from static data storage within the computer. To ensure that the data in the elementary cell will not be altered, the SRAM (static Random Access Memory) must be supplied by a power supply that will not fluctuate beyond plus or minus five or ten percent. It the elementary cell is not disturbed, a lower voltage is acceptable to ensure that the cell will correctly keep the data. "In that case, the SRAM is set to a retention mode when the power supply is lowered, and the part is not longer accessible."[30]]

Micro-archiving the present: intermediary storage, digital delay

Already electro-mechanic transmission of photographic images via telegraph cables in 19th century was performed via intermediary storage, the *quasi*-"digital" data carrier of punched cards and relay amplifiers of the electric signals. This relieved communication engineering from the delicate time-critical synchronisation problem between sender and receiver.[31]

28 See Fred Turner / Ernst Pöppel, The neural lyre. Poetic meter, the brain, and time, in: Poetry (August 1983), 277-309
29 Ernst Pöppel, Reconstruction of Subjective Time on the Basis of Hierarchivally Organized Processing Systems. Vortrag auf der Konferenz: Time, Temporality and Now, Max-Planck-Gesellschaft, Schloß Ringsberg am Tegernsee, Februar 1996, "S. 4" = quoted here after Klose 2002: 359
30 Memory 1997 <title>, chap. 8 (SRAM Technology), 8-4 = Smithonian - The Chip Collection (http://smithonianchips.si-edu, accessed May 2014), (Document of the Integrated Circuit Engineering Corportation)
31 See Christian Kassung / Franz Pichler, Die Übertragung von Bildern in die Ferne, in: Albert Kümmel-Schnur / Christian Kassung (Hg.), Bildtelegraphie. Eine Mediengeschichte in Patenten (1840-1930), Bielefeld (transcript) 2012, 101-121 (110)

This is known in digital image transfer as well: In the convergence between a repetition and a renewal "lies the tendency to archive while bringing forward"; past and present become instantly simultaneous. "While it loops the past, the digital creates <...> an archival strategy where time passed becomes constantly accessible for the future. Reality's duration seems to have become an archival stream of information potentially open for access at any other time.[32]

<end cMEDZEIT-AFFEKT-IRRITAT>

<cDIGITAL-CULTURE-TATE>
The essence of the temporal economy of tele-communication is capitalist chrono-logics, as expressed by Karl Marx in 1857:

"[...] while capital must on one side strive to tear down every spatial barrier to intercourse, i. e. to exchange, and conquer the whole earth for its market, it strives on the other side to annihilate this space with time, i. e. to reduce to a minimum the time spent in motion from one place to another."[33]

This counts for the recursion of telegraphic (that is: symbolically discrete) signal transmission in today's digital broadcasting as well:

<cMEDZEIT-AFFEKT-IRRITAT>
"[...] new media via cables or satellite reconstruct media temporal configurations by the accelleration and compression of time."[34] This does not only relate to consumer practices, but is true within such signal transfer technologies itself: audio and video compression is the key term for digital signal processing in streaming media.

The micro-temporal *camouflage*: High Frequency Trading

"Real time" does not exist, but is engineered.[35]

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32 Markos Hadjioannou, From Light to Byte. Toward an Ethics of Digital Cinema, Minneapolis (Univ. of Minnesota Pr.) 2012, 174
33 Karl Marx, Grundrisse. Foundations of the Critique of Political Economy (Rough Draft), Harmondsworth (Penguin) 1973, 538 f.
34 Mira Moshe, Media Time Squeezing: The Privatization of the Media Time Sphere, in: Television & New Media 13(1), 2012, 68-86 (73)
35 An argument by Jussi Parikka (Wncehstor school of Art), "Of Queues and Traffic: Network Microtemporealities", symposium *Digital / social media and memory*, Univ. glasgow, April 17th, 2013

There is a fuzzy present in the Internet. In Internet packet switching, ultrashort-time memory is integral in the technical part of the transmission itself where the traditional contradiction between storage and transmission collapses. With the "hyperbolic temporalities of digitality" <Parikka ebd.>, "network culture is less about clock time but more about delays, latencies.

At the virtual Stock Exchange, time-critial temporalities become economical temporealties. High Frequency Trading operates with time-"hiding" purposes like these,

just like perceptual experiments in the 1960s: smuggling ultra-short moments of Coca Cola advertising into a regular TV movie which was not consciously noticed by the viewer.

In High Frequency Trading the beast are time-beasts. micro-temporal worm holes. The focus shifts from macro-temporal economical cycles subsumed as "history" to micro-temporal intervals which undo the emphatic difference between the processual present and the archivized past. Time-critical media analysis in that sense helps to develop to create a new, different, non-historicist language of timings.

For the traditional time-based art forms like literature and theatre, such an analytic language has been developed, encompassing terms like endurance, frequency, recurrence, narrative speed, time-critical occurrence, anachronies.[36] It is time to extend this language to the process which happen within the machines.

The aesthetics of "instant replay"

- Micro-archiving of presence is conceptually and technologically implied in the real-time processing of signals, since as a digital time-discrete sampling and quantizing of moments from the present signal (punctualizing / mathematization the continuous signal event) it requires intermediary short-time storage of data. The concept of real-time and "interrupt" for user input in computing dislocates the metaphysics of pure presence to micro-deferred presence.

In techno-mathematical media which not only allow for re-play of recorded sound but as well interaction and applying intelligent

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36 See Gérard Genette, Die Erzählung, Munich 1994; Hugo
   Münsterberg, The Photoplay, xxx 1916; Markus Kuhn,
   Filmnarratologie. Ein erzähltechnisches Anaysemodell, Berlin /
   Boston 2013

search and sorting on the basis of algorithms, a whole scale of micro-temporal "archiving presence" takes place, starting from ultra-short intermediary storage of electronic equivalents to zero and one in registers and flags, up to time axis manipulations after the digital sampling or recorded audio signals.

[The instant archivization of the present becomes apparent with newsradio channels such as German "Inforadio" at radio Berlin-Brandenburg rbb) as frequent errors in (re-)play. What appears like actual news broadcast, by mistake (the new editor pushes the wrong button on his digital control panel) a news just spoken is repeated again. All of the sudden (shock for the "presence" instinct authenticity contract between listener and radio station) it becomes apparent that there is not live transmission any more (Rumanean "trasmissione directa"), but digitally stored ("sampled") sound files - a presence which is "archived" already. The present event and storage merge into one with the increasing digital, i. e.: archiving recording of present spaces. The presence of space itself is being transformed into time-coded snapshots like instant photography by I-pads which step by step ("one bit at a time") *samples* presence.]

[Different to the archive which is symbolical order, recorded by symbols (alphabet), thus: spatial orders, audio-visual media record signals which are physically functions of time. When these are being re-played, our senses are affected, in a non-historical way. There is no memory here, presence happens, like any electronic re-play is dynamic. Instead of psychoanalytic trauma-research, now an analysis of the techno-traumatic momentum is appropriate, about traumatic irritations of re-presencing induced by analog and digital techologies, such as: the phonographic voice of the dead and the real-time presence of archival records in Web 2.0 memories like the video portal YouTube.]

"We would make a mistake if we think that <...> we could refer to a 'normal' sense of presence in the present: to an unmediated, integral presence. Nothing as such exists either. We are always anticipating and deferring, missing the presence." We all live with the media archive in both existential and technological ways. "Films, images and videos, here, are time capsules", but not of historical time "but the time of a deferred, diminished presence". A counter-archive would need to give back the presence taken away from present life moment by moment[37] which actually happens on the technological micro-level as analog-to-digital-conversion ("sample-and-hold"). "Archives are always summoned to give back time. But what if they are asked to give back presence?" <Constant ebd.>

[cp. Gordon Bell's *My Life Project* recording project (permanent

37 Constant, Erkki Kurenniemi (In 2048) (preliminary work towards) an online archive; *online* http://kurenniemi.activearchives.org

data glasses]

<end cMEDZEIT-AFFEKT-IRRITAT>

The augmented present became practical in the relatively data-poor audio signal processing first: SONY publicised its IC Recorder ICD-SX733 (and other models) under the heading "Recording a few seconds in advance - the pre-recording function"[38]:

"The pre-recording function allows you to record sound sources for approximately 5 seconds prior to the point when you press REC/PAUSE. This is useful for recording during interview of when making an open-air recording so that you will not miss an opportunity to start recording"

- the extended "window of present" as known from Husserl's *Phänomenologie des inneren Zeitbewußtseins.*, in technical acts of re- and protention. The "half-second"[39] which human perception needs to process the present is beaten. The secret of this irritation of the present is a dynamic storage function:

"Sounds for 5 seconds are buffered in the memory."

[A self-indexical malfunction (noise) suddenly pops up: "If you start recording with pre-recording function using the built-inmicrophones, a click noise may be recorded when you press REC/PAUSE"; therefore the use of an external microphone is proposed.]

[The condition of possibility of "irritating the present" is here (once more) micro-storage. The system offers additional 24 photos in addition to the one actually shot - which is, maybe not by coincidence, just a "cinematrographic" second of 24 frames.]

[The description is remarkably illustrated by the momentary recording of a soccer goal.]

[This is the moment to recall Gottholm Ephraim Lessing's *Laokoon* theorem from 1766, his notion of "prägnanter Moment" which is exactly *not* identical with the photographic moment of instant photography. Plastic and visual arts, he argues, should rather accentuate the re- and protentive moment, as examplified in the ancient sculpture of the Trojan priest as described in Homer's *Iliad.*]

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But today, in the age of almost unlimited storage capacities for

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38 http://www.sony-asia.com/microsite/recorders_imanuals/ICD-SX1000/gb/contents/TP0000019455.html
39 See Herta Sturm, xxx

digital data, the pre-recording mode is replaced by continuous recording - the real-time archive. Pro-active archiving here displaces the traditional repository for records emanating from the past.

["Temporary Storage"]

A self-fullfilling prophecy was the disappearance of my entry "Zwischenspeicher / Temporary Storage", in the book *AnArchive(s). Eine minimale Enzyklopädie zur Archäologie und Variantologie der Künste und Medien.*[40]

The article very consequently disappeared not as a printed text but in the list of content. Indeed, temporary storage is quite the opposite of the printed text which is a non-rewritable storage medium; in fact that is what its storage qualities mean for academic research: most careful editing of previous versions until it gets its order "imprimatur!"; from that moment on, the author has no chance to change his text *a posteriori*. This increased responsibility and authority - different from the *online* temporality of the Wikipedia encyclopaedy with its frequent up-dates.

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So my entry on *temporary storage* became its own message.[41]

Between the archive and the anarchive there is temporary storage. While archives essentially aim towards long-term, if not even the unlimited preservation of their documents and today`s media archivists grapple desperately with the problems associated with `long-termin archiving", the temporalisation of archives is an anarchival element in the economy of cultural tradition. Archives in motion and `temporary archives` are symptoms of this temporalisation of the archive. The immediateness of the retrieval of immense volumes of data trough online databases contends with an increasingly short-term maximum usability period, which comtemporary culture knowingly accepts. Yet this temporalisation of the symbolic order is predetermined at the operative level of the present itself, namely in the practice of signal and data

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40 Edited by Claudia Giannetti, copy-edited by Eckhard Fürlus, Oldenburg (Edith-Russ-Haus für Medienkunst) 2014, 175 f.

41 W. E., entry "Zwischenspeicher / Temporary Storage", in: AnArchive(s). Eine minimale Enzyklopädie zur Archäologie und Variantologie der Künste und Medien, hg. v. Claudia Giannetti, ediert v. Eckhard Fürlus, Oldenburg (Edith-Russ-Haus für Medienkunst) 2014, 175 f.

transmission. Delay lines served the micro-synchronisation of PAL colour television signals as well as the short time maintenance of data words in the first electronic computers. It belongs to the nature of the so-called new media that they compute and switch , constantly accumulating interim values and then deleting them again. The mathematisation of technical communication by Shannon focuses on coding and the transmission channel which requires discrete temporary micro-storage – an unexpected return of the familiar archival order yet critically radicalised. The stuffy vocabulary of classic archivology shatters on such temporal modes of technological action.

"Time of non-reality": *Totzeit*, **negative time**

Not only do electronic systems replace perceptible timing operations by subliminal micro-temporal operations (like the clocking and cycling units in digital computing); a new temporal quality emerges with "binary" information theory: Norbert Wiener's notion of "time of non-reality", in fact negative time which does not numerically "count" in binary computing - the real switching moments.